

WO 00/13797

PCT/AU99/00727

16

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:-

1. Garden refuse shredding apparatus including:-
5 a chamber having a refuse inlet and an outlet for shredded material;
a fan for creating an outflow of air from said outlet;
a shredding rotor supported for rotation in the chamber;
at least one elongate chipper blade fixed for rotation with the rotor and
extending inward from adjacent the outer periphery of the rotor;
10 a respective blade aperture through the rotor in front of the or each chipper
blade through which material shredded by the chipper blade may pass;
a feed hopper for directing refuse through said refuse inlet into the chamber in
the path of the chipper blade or blades, and
drive means for rotating the rotor.
- 15 2. Garden refuse shredding apparatus as claimed in claim 1, wherein:-
the fan includes fan blades supported on the rotor and induces an air flow
through the feed hopper so as to assist in induction of material introduced to the feed
hopper into the housing;
- 20 the chamber is formed so as to provide an expanding outflow passage to said
outlet, and
each elongate chipper blade extends inward from adjacent the outer periphery
of the rotor substantially to or beyond the half radius position on the rotor.
- 25 3. Garden refuse shredding apparatus as claimed in claim 1 or claim 2, wherein
the shredding rotor is supported for rotation about an upstanding axis, the feed
hopper extends upwardly from an upper end wall of the chamber and the fan blades
are mounted on the shredding rotor at the side thereof remote from the feed hopper.
- 30 4. Garden refuse shredding apparatus as claimed in any one of the preceding
claims, wherein the shredding rotor is mounted for direct drive from the output shaft
of the drive motor.

WO 00/13797

PCT/AU99/00727

17

5. Garden refuse shredding apparatus as claimed in claim 4, wherein the drive motor is a vertical crankshaft internal combustion engine supported above the chamber, and wherein the shredding rotor is fixed to a hub which rotates with the output shaft of the motor and which is supported by a bearing independent of the

5 motor.

10 6. Garden refuse shredding apparatus as claimed in claim 5, wherein both the motor and the bearing supporting the hub are supported by the upper end wall of the chamber.

15 7. Garden refuse shredding apparatus as claimed in any one of claims 4 to 6, wherein the bearing supporting said hub isolates the end and radial loads applied by the shredding rotor from the engine.

20 8. Garden refuse shredding apparatus as claimed in any one of claims 4 to 7, wherein the bearing is a self-aligning bearing which is locked to the hub.

25 9. Garden refuse shredding apparatus as claimed in claim 8, wherein the engine is supported on an open bracket above the hub bearing whereby access may be gained to the hub bearing for locking the bearing to the hub.

10. Garden refuse shredding apparatus as claimed in any one of the preceding claims, wherein the drive motor is an electric motor and the rotor is mounted directly on the output shaft of the motor.

25

11. Garden refuse shredding apparatus as claimed in any one of claims 3 to 10, wherein the shredding rotor is suspended from a nominally horizontal upper end wall of an upper housing part within a chamber formed between the upper housing part and a lower housing part and wherein the housing parts may be separated to expose the shredding rotor.

30

12. Garden refuse shredding apparatus as claimed in claim 11, wherein the upper end wall also supports the motor and the hopper and wherein the upper housing part

WO 00/13797

PCT/AU99/00727

18

is hingedly connected to the lower housing part for pivotal separation to expose the shredding rotor.

13. Garden refuse shredding apparatus as claimed in claim 12, wherein the lower
5 housing part is supported on skids or wheels.

14. Garden refuse shredding apparatus as claimed in any one of the preceding
claims, wherein:

10 the chamber has an end wall extending across the blade mounting face of
rotor and through which the feed hopper directs refuse into the chamber;

an annular barrier wall is fixed to said end wall and extends about the portion
of the hub exposed between said end wall and the rotor;

15 complementary disrupting members are supported on said end wall and the
rotor radially outwardly of the annular barrier wall but inwardly of the chipper blades,
the complementary disrupting members forming fixed members and stationary
members respectively which pass closely adjacent one another upon rotation of the
rotor.

20 15. Garden refuse shredding apparatus as claimed in claim 14, wherein each said
fixed member is a substantially cylindrical projection extending from said end wall
and each said stationary members is a blade member which passes closely adjacent
the outer and end faces of the cylindrical projection.

25 16. Garden refuse shredding apparatus as claimed in claim 15, wherein the
cylindrical head of a high tensile cap screw or bolt passing through said end wall
forms a said cylindrical projection.

30 17. Garden refuse shredding apparatus as claimed in any one of the preceding
claims, wherein the chamber is a volute shaped chamber which provides an
expanding path for shredded refuse to an outlet from the chamber.

18. Garden refuse shredding apparatus as claimed in any one of the preceding

WO 00/13797

PCT/AU99/00727

19

claims and including an anvil across the trailing end of said inlet which cooperates with said chipper blades.

19. Garden refuse shredding apparatus as claimed in any one of the preceding claims, wherein the inlet and each chipper blade extends across two-thirds of the 5 rotor's radial extent.

20. A method of inhibiting entwinement of elongate articles about the drive shaft of rotary processing members, the method including:-

10 forming a barrier wall about the drive shaft to substantially conceal access between the walls from and to which the drive shaft extends to the rotary processing member, and

15 providing complementary disrupting members on the respective walls from and to which the drive shaft extends to the rotary processing member, the disrupting members comprising fixed and stationary members which pass closely adjacent one another upon rotation of the rotary processing member so as to disrupt material tending to pass to the drive shaft.

21. Rotary processing apparatus of the type including a drive shaft extending from a fixed wall to an adjacent wall of a processing member driven for rotation by the 20 drive shaft, the rotary processing apparatus including:-

a barrier wall mounted on one of said fixed or adjacent walls about the drive shaft and terminating close to the other wall, and

25 complementary disrupting members extending from respective said fixed and adjacent walls so as to pass closely adjacent one another upon rotation of the adjacent wall relative to the fixed wall.

22. A rotary processor such as garden refuse shredder having a driven shaft driving a shredder mounted within a housing, an inlet to the housing for refuse to be shredded and an outlet from the housing for discharging shredded refuse, wherein:-

30 impeller means are associated with the shredder for inducing an inflow to the housing through the inlet and an outflow from the housing through the outlet.

WO 00/13797

PCT/AU99/00727

20

23. Garden refuse shredding apparatus including:-
a shredding rotor supported for rotation in a chamber and having one or more
chipper blades adjacent its outer periphery and a blade aperture through the rotor
5 which leads the or each respective chipper blade;
a feed hopper for directing refuse into the chamber in the path of the chipper
blade or blades;
an electric motor for rotating the rotor;
a friction brake biased to an engaged attitude with the shredding rotor so as to
10 cause the shredding rotor to slow quickly once electrical power to the driving motor
has ceased;
a manual on/off control associated with an onboard electrical switch which
controls the supply of electricity to the electric motor and with the friction brake
whereby movement of the control to the on position for supplying electricity to the
15 motor moves the friction brake from its engaged attitude to a disengaged attitude.
24. Garden refuse shredding apparatus as claimed in claim 22, wherein the
friction brake includes a single brake shoe carried on a lever for movement to and
from its engaged attitude and wherein the lever co-operates with an electrical switch
20 in its disengaged position to supply electricity to the motor.
25. Garden refuse shredding apparatus as claimed in claim 24, wherein the
friction brake is suitably arranged as a leading shoe brake.
25. 26. Garden refuse shredding apparatus as claimed in any one of claims 23 to 25,
wherein the shredding rotor is supported within a shredder housing which is opened
to provide service access to the shredding rotor and a latching arrangement is
provided for holding the brake lever or other manual on/off control when in the on
position in a blocking position blocking the opening of the shredder housing.
30
27. Garden refuse shredding apparatus including:-

WO 00/13797

PCT/AU99/00727

21

a shredding rotor supported for rotation in a chamber and having one or more chipper blades adjacent its outer periphery and a blade aperture through the rotor which leads the or each respective chipper blade;

- a feed hopper for directing refuse into the chamber in the path of the chipper
5 blade or blades, and
drive means for rotating the rotor.

T00290-T00290-908260